No. 9800349

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Abbott & Cobb, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN, SWEET

'AC 33892'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twenty-fifth day of May, in the year of our Lord two thousand.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions.* FORM APPROVED - OMB NO. 0581-00

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a).

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
Abbott & Cobb, Inc.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
AC 33892

3. VARIETY NAME
AC 33892

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
4151 Street Road
P. O. Box 307
Feasterville, PA 19053-0307

5. TELEPHONE *(include area code)*
215-245-6666

6. FAX *(include area code)*
215-2451068

FOR OFFICIAL USE ONLY

PVPO NUMBER 9800349

FILING DATE 7-30-1998

FEE RECEIVED
FILING AND EXAMINATION FEE: $ 2450.00 DATE 7-17-98
CERTIFICATION FEE: $ 200 DATE 5/1/00

7. GENUS AND SPECIES NAME
Zea mays L.

8. FAMILY NAME *(Botanical)*
Graminae

9. CROP KIND NAME *(Common name)*
Sweet Corn

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.) (Common name)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Abbott & Cobb, Inc. PA

12. DATE OF INCORPORATION
1/1/74

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
a) Dr. Bryant Long and/or Aurin Primack, Esq.
Abbott & Cobb, Inc.
11460 Fortune Circle
West Palm Beach, FL 33414

b) Keith Parr, Esq.
Lord, Bissell & Brook
115 S. LaSalle St.
28th Floor
Chicago, IL 60603

14. TELEPHONE *(include area code)*
a) 561-795-0121
b) 312-443-0497

15. FAX *(include area code)*
a) 561-795-0251
b) 312-443-0336

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow instructions on reverse)*

- a. ☒ Exhibit A. Origin and Breeding History of the Variety
- b. ☒ Exhibit B. Statement of Distinctness
- c. ☒ Exhibit C. Objective Description of the Variety
- d. ☐ Exhibit D. Additional Description of the Variety
- e. ☒ Exhibit E. Statement of the Basis of the Applicant's Ownership
- f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in a public repository)*
- g. ☒ Filing and Examination Fee ($2,450), made payable to "Treasurer of the United States" *(Mail to PVPO)*

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)?*
☐ YES *(If "yes," answer items 18 and 19 below)* ☒ NO *(If "no," go to item 20)*

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☐ NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☒ YES *(If "yes," give names of countries and dates)* ☐ NO
U.S.A. January 1999 (as a hybrid produced from...) and Japan, New Zealand, England, Hun

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*		SIGNATURE OF APPLICANT *(Owner(s))*	
Arthur C. Abbott Pres/CEO			
NAME *(Please print or type)*		NAME *(Please print or type)*	
Abbott & Cobb, Inc.			
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
Chief Executive Officer	7/7/98		

SD-470 (04-96) *(Previous editions are to be destroyed)* *(See reverse for instructions and information collection burden statement)*

SMS
3/27/00

Exhibit A

A STEPWISE SERIES OF BREEDING TECHNIQUES WERE UTILIZED TO EFFECT THE ASSEMBLY OF A UNIQUE AND NOVEL COMBINATION OF ELEVATED ENDOSPERM SUGARS, PERICARP TENDERNESS, AND HIGH KERNEL COLOR.

THE FEW STUDIES INVESTIGATING THE INHERITANCE OF THESE AND RELATED TRAITS INDICATE LIMITED EXAMPLES OF SINGLE GENE EFFECTS (HUELSON, W.A. 1954. SWEET CORN. INTERSCIENCE PUB. NEW YORK) (COE,E.H.JR, NUEFFER, M.G., AND HOISINGTON, D.A. 1988. THE GENETICS OF CORN. IN CORN AND CORN IMPROVEMENTS. SPRAQUE, G.F. AND DUDLEY, J. W. (EDS). AMERICAN SOCIETY OF AGRONOMY, MADISON, WISCONSIN) (TRACY, W.F. 1990. POTENTIAL OF FIELD CORN GERMPLASM FOR THE IMPROVEMENT OF SWEET CORN. CROP SCI. 30: 1041).

IN MOST CASES POLYGENIC INHERITANCE IS DOCUMENTED WITH SIGNIFICANT GENOTYPE BY ENVIRONMENTAL EFFECTS.

THE INITIAL PHASE OF THE DEVELOPMENT OF AC 33892 INVOLVED THE IDENTIFICATION AND STABILIZATION OF THE HIGH COLOR TRAIT.

SOURCE MATERIALS INVOLVED THE UTILIZATION OF THE UNIVERSITY OF FLORIDA INBRED LINE 2132 CONVERTED TO SH2. THIS LINE IS DESIGNATED FLA 2132 SH2. THE VARIETY SHOWCASE IS A SH2 COMMERCIAL RELEASE BY ROGERS SEED COMPANY.

THE RESULTING CROSS OF THE ABOVE TWO MATERIALS PRODUCED THE LINE AC 401 WHICH WAS THEN BACKCROSSED REPEATEDLY TO FLA 2132 SH2. THE DERIVATIVE WAS CROSSED TO THE ABBOTT AND COBB COMMERCIAL HYBRID SS 7410. THE PRODUCT OF THIS COMBINATION WAS

LABELED AC 637.

FROM THE PROGENY OF AC 637 A SINGLE, UNIQUE KERNEL WAS OBSERVED OF UNUSUALLY BRIGHT YELLOW, HIGH LUSTER YELLOW COLOR.

THROUGHOUT THE S4 GENERATION OF SELF POLLINATION A SPECIALIZED SCORING SYSTEM (TABLE 2, EXHIBIT B) WAS UTILYZED TO QUANTIFY AND STABILIZE THE HIGH COLOR TRAIT.

SEVEN ADDITIONAL GENERATIONS OF SELF POLLINATION WERE EFFECTED TO FINALIZE THE DEVELOPMENT OF AC 637 HC.

NO VARIANTS OR OFFTYPES HAVE BEEN OBSERVED IN AC 637 HC.

A SCHEMATIC DIAGRAM OUTLINING THE DERIVATION OF AC 637 HC IS GIVEN IN FIGURE 1A.

A SCHEMATIC DIAGRAM OUTLINING THE DERIVATION OF AC 03 IS GIVEN IN FIGURE 1C.

PHASE 2 OF THE DEVELOPMENT OF AC33892 INVOLVED THE ADDITION OF THE "MULTISWEET" CHARACTER (HIGH SUGAR, IMPROVED TENDERNESS) TO AC 33892.

ANALYTICAL PROCEDURES ARE OUTLINED IN PVP APPLICATION 9600094 '781ULTRA' AND IN THE CURRENT EXHIBIT B.

IMPROVED SUGAR LEVELS WERE EFFECTED UTILIZING THE su1, se, AND sh2 GENES AMOUNG OTHERS.

ALL THREE GENES ARE CONDITIONED BY SINGLE MAJOR GENES (FURGUSON, J.E., RHODES, A.M., AND DICKINSON, D.B. 1978. THE GENETICS OF SUGARY ENHANCER (SE) AN INDEPENDENT MODIFIER OF SWEET CORN (SU1). J HERED. 69:377-389.) (TRACY, F.T. IN PRESS. THE DEVELOPMENT, GENETICS, AND BREEDING OF SUPERSWEET (SHRUNKEN-2) SWEET CORN. PLANT BREEDING REVIEWS).

GENETIC BACKGROUND HAS BEEN DEMONSTRATED AS A CONTRIBUTING FACTOR TO OVERALL GENE EFFECT IN ALL THREE ENDOSPERM TYPES (su1, se, AND sh2).

PERICARP TENDERNESS, ON THE OTHER HAND, IS CONDITIONED BY NUMEROUS GENETIC FACTORS (JOHNSON, I.J. AND H.K. HAYES. 1937. THE INHERITANCE OF PERICARP TENDERNESS IN SWEET CORN. JOUR. OF THE AMER. SOC. AGR. 29:220-231) (ITO, GLENN M., AND JAMES L. BREWBAKER. 1981. GENETIC ADVANCE THROUGH MASS SELECTION FOR TENDERNESS IN SWEET CORN. J. AMER. SOC. HORT. SCI. 106 (4): 496-499.).

THE INITIAL STEPS TO INCORPORATE HIGH SUGAR, IMPROVED PERICARP TENDERNESS, AND HIGH KERNEL COLOR INVOLVED CROSSING AC 637 HC TO AC 03. AC IS THE MALE PARENT OF THE HYBRID '781 ULTRA' (PVP APPLICATION 9600094 '781 ULTRA'). AC 03 EXPRESSES SIGNIFICANTLY ELEVATED SUCROSE LEVELS WITH ASSOCIATED TENDER PERICARP.

BACKCROSSING WAS UTILIZED WITH THE SEQUENTIAL AND CONCOMMITANT SELECTION FOR HIGH SUGAR, TENDER PERICARP, AND HIGH KERNEL COLOR.

OF 212 BC1 SEGREGATING PROGENY, 7 EARS WERE ANALYTICALLY DETERMINED TO EXPRESS HIGH SUCROSE CONTENT. OF THE 7 HIGH SUCROSE SEGREGANTS, 4 WERE DETERMINED TO EXHIBIT FAVORABLY TENDER PERICARP LEVELS.

THESE EARS EXPRESSING DESIRABLE PERICARP TENDERNESS WERE IN TURN SCREENED FOR HIGH COLOR SEGREGANTS. ACCEPTIBLE HIGH COLOR KERNELS WERE SAVED FOR FURTHER BACKCROSSING.

BC2 SUCROSE ANALYSES RESULTED IN 84 OF 243 EARS EXPRESSING ELEVATED SUCROSE CONCENTRATIONS. OF THE 84 EARS, 25 EXHIBITED

REDUCED PERICARP LEVELS.

HIGH COLOR SEGREGANTS WERE AGAIN SELECTED AND SAVED WITHIN THE 25 EARS CLASSIFIED AS HAVING TENDER PERICARPS.

BACKCROSSING WAS CONTINUED IN THE BC3 AND BC4 GENERATIONS WITH SEQUENTIAL SELECTION FOR HIGH SUCROSE, TENDER PERICARP AND HIGH COLOR.

FIVE ADDITIONAL GENERATIONS OF SELFING WERE EFFECTED TO CONFIRM STABILITY AND UNIFORMITY OF THE ABOVE KERNEL TRAITS.

NO VARIANTS OR OFFTYPES WERE NOTED IN THE FIVE GENERATIONS OF IN BREEDING

WE WERE ABLE TO CONCLUDE THAT AC 33892 WAS GENETICALLY STABLE AND UNIFORM FOR ALL TRAITS OBSERVED.

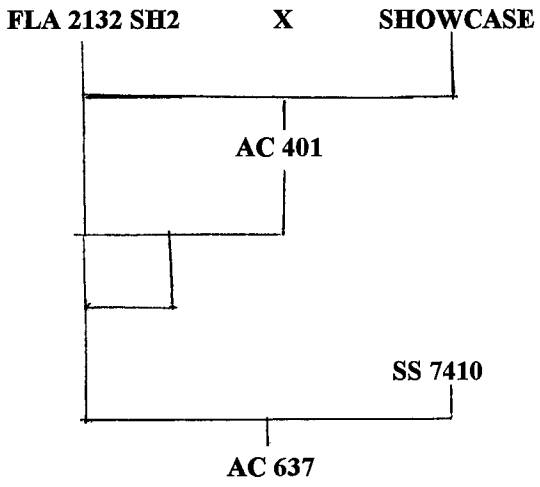
A SCHEMATIC OUTLINING THE DERIVATION OF AC 33892 IS GIVEN IN FIGURE 1B.

FIGURE 1A .

EXHIBIT A

ORIGIN AND BREEDING HISTORY OF AC 33892

PHASE 1 - STABILIZATION OF HIGH KERNEL COLOR



HIGH COLOR KERNEL IDENTIFIED AND SAVED

SINGLE PLANT RESULTING FROM SAVED HIGH COLOR SINGLE SEED SELF POLLINATED YIELDING 7 HIGH COLOR SEGREGANTS FROM A TOTAL OF 263 KERNELS

S1 GENERATION - 99 OF 1108 KERNELS SAVED (COLOR RATING SCORE = 5) RESULTING IN 8.93 PERCENT OF THE TOTAL

S2 GENERATION - 6499 OF 23463 KERNELS SAVED (COLOR RATING SCORE = 5) RESULTING IN 27.7 PERCENT OF THE TOTAL

S3 GENERATION - 20964 OF 24101 KERNELS SAVED (COLOR RATING SCORE = 5) RESULTING IN 86.9 PERCENT OF THE TOTAL

S4 GENERATION - 23603 OF 23603 KERNELS SAVED (COLOR RATING SCORE = 5) RESULTING IN 100 PERCENT OF THE TOTAL

SEVEN ADDITIONAL GENERATIONS OF SELFING FINALIZING AC 637 HC

FIGURE 1C

BREEDING HISTORY AND ORIGIN OF AC 03

AC SH2 01	IL 677A	SILVER QUEEN
	AC SE 01	JUBILEE
X	X	BONANZA
AC SH2 26	AC SE 08	BELLRINGER

↓

936 F1 PEDIGREES

↓ SELF POLLINATION

936 F2 FAMILIES REDUCED TO 263 LINES ON THE BASIS OF SUPERIOR HORTICULTURAL FEATURES (VIA MASS SELECTION AND BULKING WITHIN PEDIGREES).

↓

SELECTION WITHIN F3 FAMILIES VIA ORGANOLEPTIC AND QUANTITATIVE ENDOSPERM BIOCHEMICAL ANALYSES - 197 EARS SAVED FROM 112 OF 263 FAMILIES TESTED.

↓

SIMILAR ORGANOLEPTIC AND QUANTITATIVE ANALYSES FOR FOUR SUBSEQUENT SELF POLLINATED GENERATIONS.

↓

TWO GENERATIONS OF SELF POLLINATION AND FINAL STABILIZATION OF HORTICULTURAL CHARACTERS RESULTING IN 14 FINISHED INBREDS.

↓

IDENTIFICATION OF AC 03

FIGURE 1B.

PHASE 2 - INCORPORATION OF "MULTISWEET" HIGH SUGAR AND TENDERNESS INTO AC 637 HC

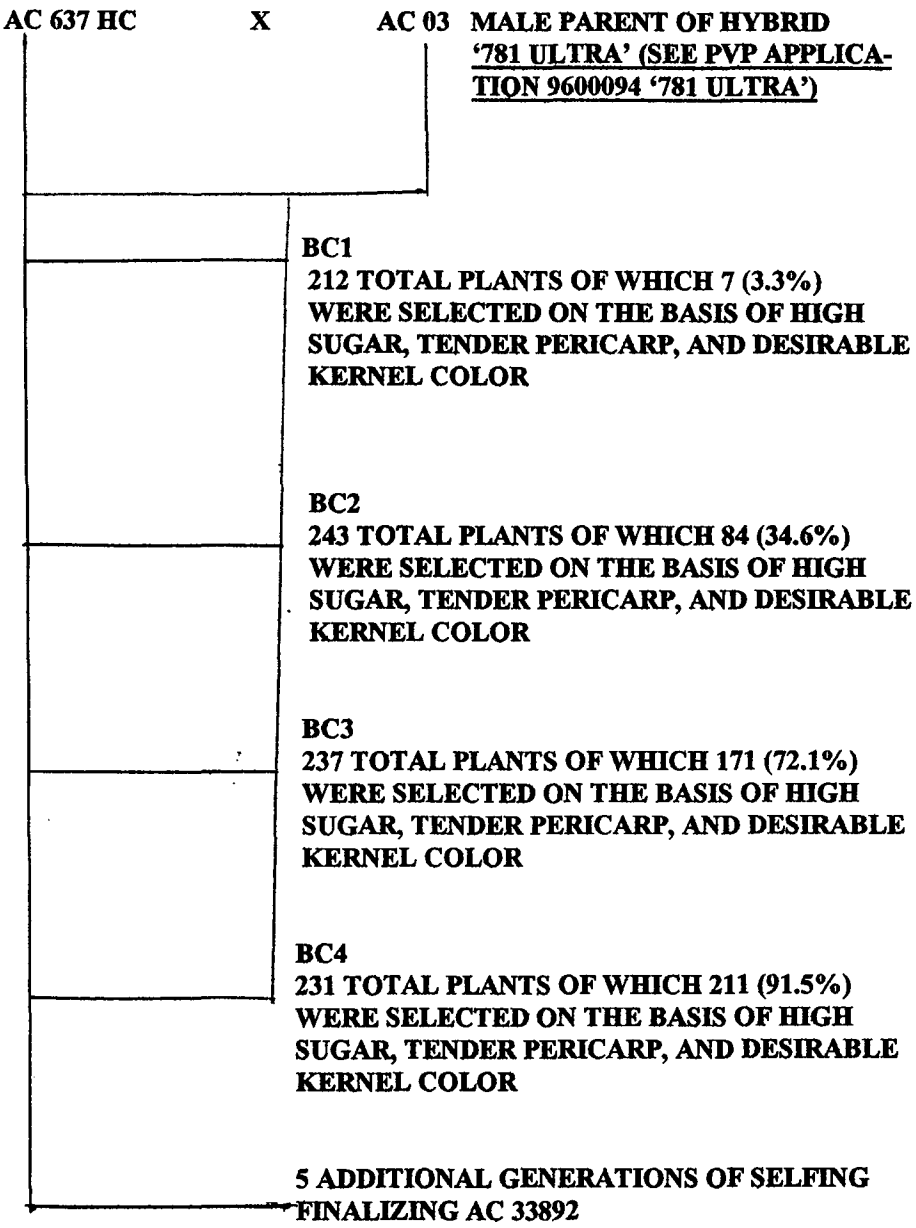


EXHIBIT B

STATEMENT OF DISTINCTNESS

FLA 2132 SH2 WAS CHOSEN FOR COMPARATIVE PURPOSES AS THIS INBRED LINE IS MOST SIMILAR TO AC 33892.

TO DETERMINE PERICARP LEVELS THE PROCEDURES OUTLINED BY SHANNON (SHANNON, J. 1985. PERSONAL COMMUNICATION. CORNELL UNIVERSITY) WERE UTILIZED.

THE PROCEDURE INVOLVES HOMOGENIZING 100 G OF SWEET CORN KERNELS IN 100 ML OF DISTILLED WATER.

THE RESULTANT HOMOGENATE IS APPLIED TO A #10 MESH SIEVE SCREEN. THE HOMOGENATE IS THEN WASHED REPEATEDLY TO ELIMINATE ALL MATERIALS EXCEPT FOR THE LARGER SIZED PERICARP FRACTION RETAINED BY THE SIEVE SCREEN.

THE PERICARP FRACTION IS DRIED VIA CONVECTION OVEN AT 100 DEGREES CENTIGRADE FOR 24 HOURS UNTIL DRY WEIGHT RESIDUES ARE WEIGHED AND RECORDED.

PERICARP MEASUREMENTS WERE ALSO CONDUCTED WHEN EARS WERE AT APPROXIMATELY 74 – 75% MOISTURE.

THE DUNCANS MULTIPLE RANGE TEST WAS UTILIZED FOR DISTINGUISHING STATISTICAL DIFFERENCES AMONG MEANS. ALL MEANS NOT FOLLOWED BY THE SAME LETTER ARE SIGNIFICANT AT P = 0.05.

THE DATA FOLLOWED A NORMAL DISTRIBUTION AND WERE NOT NON-PARAMETRIC RESULTING IN NO NEED FOR DATA TRANSFORMATION.

PLANTINGS WERE CONDUCTED IN THE BELLE GLADE, FLORIDA REGION IN WHICH THREE PLOTS ON AVERAGE WERE MAINTAINED HAVING APPROXIMATELY 25 PLANTS PER ENTRY.

COMPARATIVE PERICARP LEVELS FOR FLA 2132 SH2, AC 03, AND AC 33892 ARE SHOWN IN FIGURE 19, TABLE 21. AGAIN, AC 03 AND AC 33892 HAVE SIGNIFICANTLY REDUCED PERICARP LEVELS IN RELATION TO FLA 2132 SH2.

THE SCALING STRUCTURE LISTED IN TABLE 2 WAS UTILIZED TO SCORE COLOR INTENSITY.

TABLE 2

SCALING SYSTEM FOR SCORING FRESH KERNEL COLOR*

RATING SCORE	MUNSELL COLOR CODE	DESCRIPTION
1	2.5Y 8/2	DULL, VERY PALE OFF COLOR
2	2.5Y 8/4	DULL, PALE YELLOW
3	2.5Y 8/6	INTERMEDIATE YELLOW
4	2.5Y 8/8	BRIGHT YELLOW
5	2.5Y 8/10	VERY BRIGHT, HIGH INTENSITY YELLOW

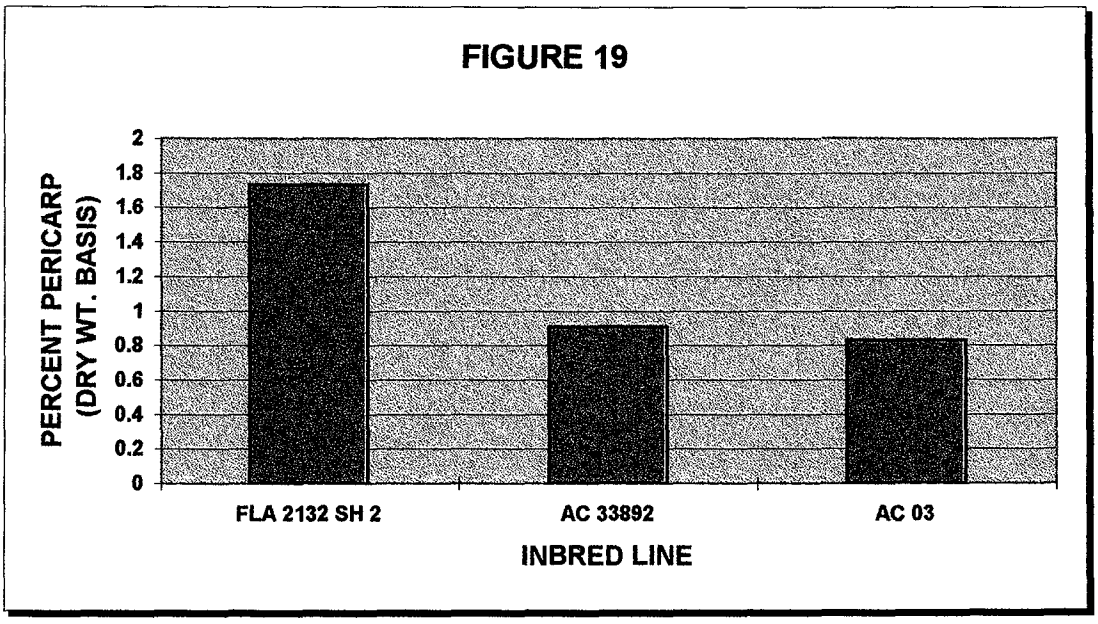
*APPROXIMATELY 75 PERCENT MOISTURE

FIGURE 20, TABLE 22 ILLUSTRATES THE COMPARATIVE DIFFERENCE IN KERNEL COLOR RATING SCORES BETWEEN FLA 2132 SH2 AND AC 33892.

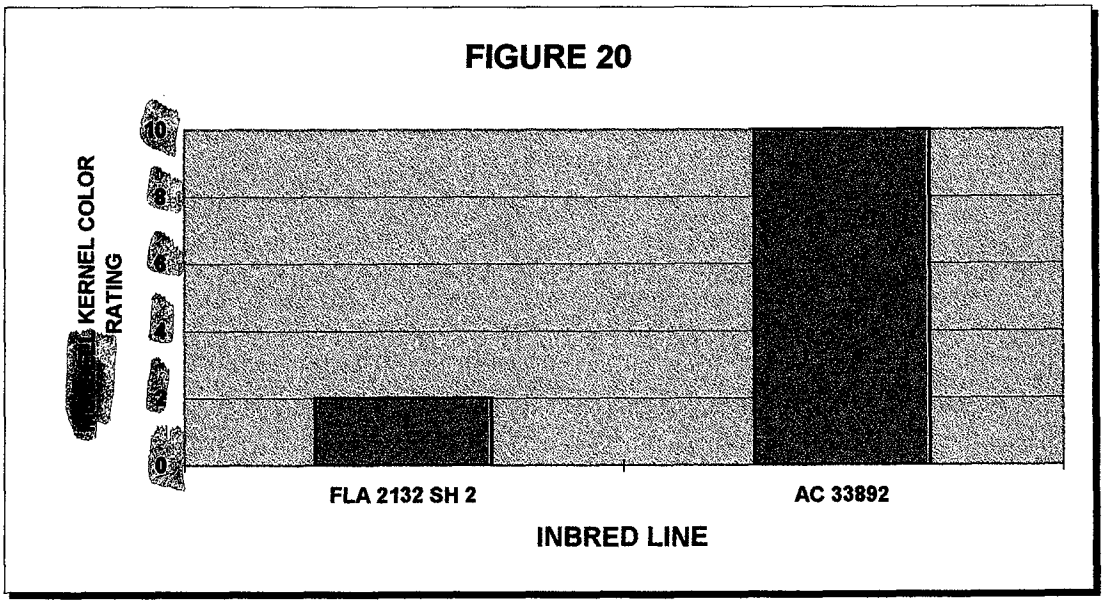
THE KERNEL COLOR OF FLA 2132 SH2 IS CONSIDERED TYPICAL OF THE VAST MAJORITY OF COMMERCIAL SH 2 MATERIALS. AC 33892 IS CLEARLY DISTINCT IN EXHIBITING BRIGHTER AND MORE VIVID HIGH LUSTER YELLOW KERNEL COLOR.

THESE DATA DEMONSTRATE THE UNIQUE AND NOVEL KERNEL COLOR ATTRIBUTES OF AC 33892 ALONG WITH THE SIGNIFICANTLY ELEVATED SUGAR LEVELS AND REDUCED PERICARP PERCENTAGES.

TO OUR KNOWLEDGE THIS IS THE FIRST DOCUMENTED EXAMPLE WHEREBY THESE COMPONENTS (IMPROVED KERNEL COLOR AND APPEARANCE WITH ASSOCIATED HIGH SUGAR AND TENDERNESS) HAVE BEEN ASSEMBLED INTO ONE SWEET CORN INBRED LINE.



PERICARP LEVELS FOR FLA 2132 SH2, AC 33892, AND AC 03



All Munsell Values prefixed by 2.5Y 8/

KERNEL COLOR RATINGS FOR FLA 2132 SH2 AND AC 33892

TABLE 21.
PERICARP LEVELS (PERCENT DRY WEIGHT) FOR FLA 2132 SH2, AC 33892, AND AC 03

INBRED LINE	REP 1	REP 2	REP 3	MEAN**
FLA 2132 SH2	1.66	1.75	1.78	1.736
AC 33892	0.86	0.97	0.90	0.91a
AC 03	0.85	0.88	0.76	0.83b

TABLE 22.
KERNEL COLOR RATINGS FOR FLA 2132 SH2 AND AC 33892

INBRED LINE	TOTAL KERNELS EVALUATED	MEAN KERNEL COLOR RATING	MUNSEL COLOR CODE
FLA 2132 SH2	2643	2	2.5Y 8/4
AC 33892	2513	5	2.5Y 8/10

JN 3/27

TABLE 23.
HORTICULTURAL COMPARISON OF AC33892 AND AC 03

	AC33892	AC 03
PLANT HEIGHT	54.5"	61.5"
NUMBER OF TILLERS	1-2	2-3
EAR LENGTH	4.25"	5.10"
KERNEL COLOR	YELLOW	WHITE
NUMBER OF KERNEL ROWS	14	16-18
EAR DIAMETER	1.63"	1.77"
KERNEL DEPTH (mm)	8-9mm	11-12mm

FORM SD-470-28
(9-1-92)

EXHIBIT C
(Corn: Maize)

United States Department of Agriculture, Agricultural Marketing Service
Science Division, Plant Variety Protection Office
National Agricultural Library Building, Room 500
Beltsville, MD 20705

OBJECTIVE DESCRIPTION OF VARIETY
CORN (*Zea mays* L.)

Name of Applicant(s)	Variety Seed Source	Variety Name or Temporary Designation
ABBOTT and Cobb, INC.		AC 33892

Address (Street & No., or R.F.D. No., City, State, Zip Code and Country)	FOR OFFICIAL USE
P.O. BOX 307 Feasterville, PA 19053-0307 U.S.A	PVPO Number 9[illegible]0349

Place the appropriate number that describes the varietal characters typical of this inbred variety in the spaces below. Right justify whole numbers by adding leading zeroes if necessary. Completeness should be striven for to establish an adequate variety description. Traits designated by a '*' are considered necessary for an adequate variety description and must be completed.

COLOR CHOICES (Use in conjunction with Munsell color code to describe all color choices; describe #25 and #26 in Comments section):

01=Light Green	06=Pale Yellow	11=Pink	16=Pale Purple	21=Buff
02=Medium Green	07=Yellow	12=Light Red	17=Purple	22=Tan
03=Dark Green	08=Yellow-Orange	13=Cherry Red	18=Colorless	23=Brown
04=Very Dark Green	09=Salmon	14=Red	19=White	24=Bronze
05=Green-Yellow	10=Pink-Orange	15=Red & White	20=White Capped	25=Variegated (Describe)
				26=Other (Describe)

STANDARD INBRED CHOICES (Use the **most similar** (in background and maturity) of these to make comparisons based on **grow-out trial data**):

Yellow Dent Families:		Yellow Dent (Unrelated):	Sweet Corn:
Family	Members	Co109, ND246,	C13, Iowa5125, P39, 2132
B14	CM105, A632, B64, B68	Oh7, T232	
B37	B37, B76, H84	W117, W153R	Popcorn:
B73	N192, A679, B73, NC268	W182BN	SG1533, 4722, HP301, HP7211
C103	Mo17, Va102, Va35, A682		
Oh43	A619, MS71, H99, Va26	White Dent:	Pipecorn:
WF9	W64A, A554, A654, Pa91	CI66, H105, Ky228	Mo15W, Mo16W, Mo24W

1. TYPE: (describe intermediate types in Comments section)

* 1 1=Sweet 2=Dent 3=Flint 4=Flour 5=Pop 6=Ornamental 7=Pipecorn

Standard Inbred Name FL 2132 sh2
1

2. REGION WHERE DEVELOPED IN THE U.S.A.:

* 4 1=Northwest 2=Northcentral 3=Northeast 4=Southeast 5=Southcentral 6=Southwest 7=Other _____

Standard Seed Source _____
4

3. MATURITY (In Region Best Adaptability; show Heat Unit formula in "Comments" section):

	DAYS	HEAT UNITS		DAYS	HEAT UNITS
*	58	1294.	From emergence to 50% of plants in silk	67	1483.
*	56	1261.	From emergence to 50% of plants in pollen	65	1451.
	2	47.	From 10% to 90% pollen shed	2	48.
(*)	19	431.	From 50% silk to optimum edible quality	20	451.
	67	1193.	From 50% silk to harvest at 25% moisture	69	1231.

4. PLANT:

	Standard Deviation	Sample Size		Standard Deviation	Sample Size
* 172.3 cm Plant Height (to tassel tip)	18.61	25	178.2	16.33	25
* 60.4 cm Ear Height (to base of top ear node)	11.11	25	63.7	12.71	25
23.4 cm Length of Top Ear Internode	5.09	25	25.2	4.88	25
0.8 Average Number of Tillers	0.09	25	0.1	0.03	25
* 1.0 Average Number of Ears per Stalk	0.03	25	1.3	0.11	25

1 Anthocyanin of Brace Roots: 1=Absent 2=Faint 3=Moderate 4=Dark

1

Application Variety Data	Page 3	Standard Inbred Data 9800240

8. KERNEL (Dried):	Standard Deviation	Sample Size		Standard Deviation	Sample Size
9.0 mm Kernel Length	1.13	25		9.0	0.96	25
7.1 mm Kernel Width	0.83	25		6.9	0.91	25
5.2 mm Kernel Thickness	0.71	25		5.0	0.66	25
— % Round Kernels (Shape Grade)				—		
1 Aleurone Color Pattern: 1=Homozygous 2=Segregating				1		
(*) 18 Aleurone Color (Munsell code —)				18 (Munsell code —)		
* 07 Hard Endosperm Color (Munsell code 2.5Y (8/10))				06 (Munsell code 2.5Y (8/6))		
* 10 Endosperm Type: 1=Sweet (su1) 2=Extra Sweet (sh2) 3=Normal Starch 4=High Amylose Starch 5=Waxy Starch 6=High Protein 7=High Lysine 8=Super Sweet (se) 9=High Oil 10=Other combination of su, se, and sh2 genetic types				02		
9.7 gm Weight per 100 Kernels (unsized sample)	0.69	25		10.1	0.81	25

9. COB:	Standard Deviation	Sample Size		Standard Devaition	Sample Size
SMS 6/15/99 * 27.9 mm Cob Diameter at mid-point	4.71	25		28.9	3.36	25
19 Cob Color (Munsell code — 2.5Y 8/2)				19 (Munsell code — 2.5Y 8/2)		

10. DISEASE RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant): leave blank if not tested; leave Race or Strain Options blank if polygenic):

A. Leaf Blights, Wilts, and Local Infection Diseases	
Anthracnose Leaf Blight (*Colletotrichum graminicola*)	
3 Common Rust (*Puccinia sorghi*)	4
Common Smut (*Ustilago maydis*)	
Eyespot (*Kabatiella zeae*)	
Goss's Wilt (*Clavibacter michiganense* spp. *nebraskense*)	
Gray Leaf Spot (*Cercospora zeae-maydis*)	
Helminthosporium Leaf Spot (*Bipolaris zeicola*) Race	Race
5 Northern Leaf Blight (*Exserohilum turcicum*) Race 1 and 2	8 Race 1 and 2
3 Southern Leaf Blight (*Bipolaris maydis*) Race T	6 Race T
2 Southern Rust (*Puccinia polysora*)	2
6 Stewart's Wilt (*Erwinia stewartii*)	9
Other (Specify)	
B. Systemic Diseases	
Corn Lethal Necrosis (MCMV and MDMV)	
5 Head Smut (*Sphacelotheca reiliana*)	4
Maize Chlorotic Dwarf Virus (MCDV)	
Maize Chlorotic Mottle Virus (MCMV)	
3 Maize Dwarf Mosaic Virus (MDMV) Strain A and B	3 Strain A and B
Sorghum Downy Mildew of Corn (*Peronosclerospora sorghi*)	
Other (Specify)	
C. Stalk Rots	
Anthracnose Stalk Rot (*Colletotrichum graminicola*)	
Diplodia Stalk Rot (*Stenocarpella maydis*)	
Fusarium Stalk Rot (*Fusarium moniliforme*)	
Gibberella Stalk Rot (*Gibberella zeae*)	
Other (Specify)	
D. Ear and Kernel Rots	
5 Aspergillus Ear and Kernel Rot (*Aspergillus flavus*)	6
Diplodia Ear Rot (*Stenocarpella maydis*)	
5 Fusarium Ear and Kernel Rot (*Fusarium moniliforme*)	5
Gibberella Ear Rot (*Gibberella zeae*)	
Other (Specify)	

Application Variety Data	Standard Inbred Data

Note: Use chart on first page to choose color codes for color traits.

Application Variety Data	Page 2		Standard Inbred Data		96-0349
5. LEAF:	Standard Deviation	Sample Size		Standard Deviation	Sample Siz
* 8.4 cm Width of Ear Node Leaf	1.63	25	9.9	1.52	25
* 58.1 cm Length of Ear Node Leaf	8.01	25	60.1	7.08	25
* 6.0 Number of leaves above top ear	0.83	25	6.0	0.91	25
42.1 degrees Leaf Angle (measure from 2nd leaf above ear at anthesis to stalk above leaf)	8.91	25	40.4	9.33	25
* 02 Leaf Color (Munsell code 7.5 GY (6/8))			02 (Munsell code 7.5GY (5/6))		
2 Leaf Sheath Pubescence (Rate on scale from 1=none to 9=like peach fuzz)			2		
2 Marginal Waves (Rate on scale from 1=none to 9=many)			2		
2 Longitudinal Creases (Rate on scale from 1=none to 9=many)			2		
6. TASSEL:	Standard Deviation	Sample Size		Standard Deviation	Sample Siz
* 10 Number of Primary Lateral Branches	1.10	25	12	1.41	25
52.6 Branch Angle from Central Spike	11.61	25	46.1	9.32	25
* 20.8 cm Tassel Length (from top leaf collar to tassel tip)	4.21	25	22.9	6.30	25
8 Pollen Shed (Rate on scale from 0=male sterile to 9=heavy shed)			8		
06 Anther Color (Munsell code 5Y (8/6 to 8/8))			05 (Munsell code 2.5 GY (8/10))		
01 Glume Color (Munsell code 2.5 GY (8/6))			02 (Munsell code 2.5 GY (7/6))		
1 Bar Glumes (Glume Bands): 1=Absent 2=Present			1		
7a. EAR (Unhusked Data):					
SMS 6/15/99 * 19 Silk Color (3 days after emergence) (Munsell code 2.5GY 8/2-8/4)			19 (Munsell code 2.5GY 8/2)		
02 Fresh Husk Color (25 days after 50% silking) (Munsell code 7.5GY (6/6))			03 (Munsell code 7.5 GY (4/6))		
22 Dry Husk Color (65 days after 50% Silking) (Munsell code 2.5Y (7,6))			22 (Munsell code 2.5Y (6,6))		
* 1 Position of Ear at Dry Husk Stage: 1=Upright 2=Horizontal 3=Pendent			1		
6 Husk Tightness (Rate on scale from 1=very loose to 9=very tight)			8		
3 Husk Extension (at harvest): 1=Short (ears exposed) 2=Medium (<8 cm) 3=Long (8-10 cm beyond ear tip) 4=Very Long (>10 cm)			3		
7b. EAR (Husked Ear Data):	Standard Deviation	Sample Size		Standard Deviation	Sample Siz
* 120.1 cm Ear Length	2.87	25	13.8	2.14	25
* 33.1 mm Ear Diameter at mid-point	1.83	25	34.7	2.01	25
71.4 gm Ear Weight	6.41	25	75.3	6.41	25
* 14 Number of Kernel Rows	2.01	25	16	1.87	25
1 Kernel Rows: 1=Indistinct 2=Distinct			1		
1 Row Alignment: 1=Straight 2=Slightly Curved 3=Spiral			1		
4.1 cm Shank Length	0.73	25	4.3	0.69	25
2 Ear Taper: 1=Slight 2=Average 3=Extreme			3		
Application Variety Data			Standard Inbred Data		

Note: Use chart on first page to choose color codes for color traits.

Application Variety Data	Page 4	Standard Inbred Data 9[illegible]249

11. INSECT RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant); leave blank if not tested):

	Standard Deviation	Sample Size		Standard Deviation	Sample Size
__ Banks Grass Mite (*Oligonychus pratensis*)			__		
Corn Earworm (*Helicoverpa zea*)					
__ Leaf-Feeding			__		
Silk Feeding :					
__ __ __.__ mg larval wt.	_____	____	___.__	_____	____
__ Ear Damage					
6 Corn Leaf Aphid (*Rhopalosiphum maidis*)			4		
4 Corn Sap Beetle (*Carpophilus dimidiatus*)			5		
European Corn Borer (*Ostrinia nubilalis*)					
__ 1st Generation (Typically Whorl Leaf Feeding)			__		
__ 2nd Generation (Typically Leaf Sheath-Collar Feeding)			__		
Stalk Tunneling :					
__ __ __.__ cm tunneled/plant	_____	____	___.__	_____	____
Fall Armyworm (*Spodoptera frugiperda*)					
__ Leaf-Feeding			__		
Silk-Feeding :					
__ __ __.__ mg larval wt.	_____	____	___.__	_____	____
__ Maize Weevil (*Sitophilus zeamaize*)			__		
__ Northern Rootworm (*Diabrotica barberi*)			__		
__ Southern Rootworm (*Diabrotica undecimpunctata*)			__		
Southwestern Corn Borer (*Diatraea grandiosella*)					
__ Leaf Feeding			__		
Stalk Tunneling :					
__ __ __.__ cm tunneled/plant	_____	____	___.__	_____	____
__ Two-spotted Spider Mite (*Tetranychus urticae*)			__		
__ Western Rootworm (*Diabrotica virgifera virgifera*)			__		
__ Other (Specify) _____			__ _____		

12. AGRONOMIC TRAITS:

2 Stay Green (at 65 days after anthesis) (Rate on a scale from 1=worst to 9=excellent.)	3
7.8 % Dropped Ears (at 65 days after anthesis)	4.1
1.0 % Pre-anthesis Brittle Snapping	1.0
2.8 % Pre-anthesis Root Lodging	4.0
9.1 % Post-anthesis Root Lodging (at 65 days after anthesis)	11.2
___.__ Kg/ha Yield of Inbred Per Se (at 12-13% grain moisture) see comments	___.__ see comments

13. MOLECULAR MARKERS: (0=data unavailable; 1=data available but not supplied; 2=data supplied)

0 Isozymes 0 RFLP's 0 RAPD's

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COMMENTS (eg. state how heat units were calculated, standard inbred seed source, and/or where data was collected. Continue in Exhibit D):

(1) Type: AC 33892 is considered in the sweet corn class and is a combination of su, (sugary), se (sugary enhancer), and sh2 (shrunken 2) genetic types

(2) Data collected from the Belle Glade, Florida area, Designated seed source is lot number

12 AC 33389 averages approximately 471 pounds of clean seed/acre whereas FL 2132 sh2 averages approximately 693 pounds of clean seed/acre

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AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
Abbott & Cobb, Inc.	AC 33892	AC 33892
4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	**5. TELEPHONE** *(include area code)*	**6. FAX** *(include area code)*
4151 Street Road P.O. Box 307 Feasterville, PA. 19053-0307	215-245-6666	215-245-1068
	7. PVPO NUMBER 9800349	

8. Does the applicant own all rights to the variety? *Mark an "X" in appropriate block.* If no, please explain. [X] YES [ ] NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company? [X] YES [ ] NO
If no, give name of country

10. Is the applicant the original owner? [X] YES [ ] NO *If no, please answer one of the following:*

a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)?
[ ] YES [ ] NO If no, give name of country

b. If original rights to variety were owned by a company(ies), is(are) the original owner(s) a U.S. based company?
[ ] YES [ ] NO If no, give name of country

11. Additional explanation on ownership *(if needed, use reverse for extra space)*:

The in bred line AC 33892 used in the application for this PVP certificate is owned entirely by Abbott & Cobb, Inc. AC 33892has been developed in its entirety under the corporation's direction and expense.

The plant breeder of this variety is Dr. Bryant J. Long, Phd. who is Vice President of Product Development for the corporation.

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.